WHAT IS CLAIMED IS:

1. Composite oxide powder, containing a first metal oxide having oxygen storage ability and a second metal oxide which is different from said first metal oxide, wherein:

said first metal oxide is held as ultrafine particles in the form of islands by said second metal oxide;

said composite oxide powder has a pore volume of not less than 2 cc/g; and

said first metal oxide has a particle diameter of not more than 30 nm even after exposed to high temperature of 900 ℃ or more.

2. The composite oxide powder according to claim 1, wherein said first metal oxide is at least one member selected from the group consisting of CeO_2, Pr_2O_3, Eu_2O_3 and Tb_2O_3.

3. The composite oxide powder according to claim 1, wherein said second metal oxide is at least one member selected from the group consisting of Al_2O_3, SiO_2, TiO_2, SiO_2-Al_2O_3 and TiO_2-Al_2O_3.

4. The composite oxide powder according to claim 3, wherein said second metal oxide includes Al_2O_3.

5. The composite oxide powder according to claim 1, wherein the compositional molar ratio of said first metal oxide to said second metal oxide is desirably in the range of first metal element : second metal element = 8 : 2 to 0.5 : 9.5.

6. The composite oxide powder according to claim 1, wherein

said composite oxide powder further contains a third metal oxide which is at least one member selected from the group consisting of La_2O_3, Y_2O_3 and ZrO_2.

7. The composite oxide powder according to claim 1, wherein said composite oxide powder has a shell shape.

8. The composite oxide powder according to claim 7, wherein said shell shape is hollow.

9. The composite oxide powder according to claim 7 , wherein said particles of said first metal oxide are exposed on the surface of a shell composed of said second metal oxide or said second metal oxide and said third metal oxide.

10. The composite oxide powder according to claim 8, wherein said composite oxide powder has an outside particle diameter of 20 to 5000 nm.

11. The composite oxide powder according to claim 8, wherein the ratio of an inner hole diameter to an outside particle diameter is 0.5 to 0.99.

12. The composite oxide powder according to claim 8, wherein said composite oxide powder has a specific surface area of 20 m^2/g or more.

13. A catalyst comprising:

a catalyst support composed of said composite oxide powder according to claim 1; and

a catalyst metal loaded on said catalyst support.

14. A process for producing composite oxide powder, comprising the steps of:

preparing a W/O type emulsion by mixing an organic solvent and a dispersing agent in an aqueous solution in which a water-soluble compound of a first metal element whose oxide has oxygen storage ability and a water-soluble compound of a second metal element which is different from said first metal element are dissolved; and

spraying and burning said W/O type emulsion, thereby obtaining composite oxide powder.

15. The process for producing composite oxide powder according to claim 14, wherein burning temperature is in the range from 600 to 1200 ℃.

16. The process for producing composite oxide powder according to claim 14, wherein after said spraying and burning, a thermal treatment is applied to said obtained composite oxide powder at 700 to 1200 ℃.

17. The process for producing composite oxide powder according to claim 14, wherein said first metal element is at least one member selected from the group consisting of Ce, Pr, Eu and Tb.

18. The process for producing composite oxide powder according to claim 14, wherein said second metal element is at least one member selected from the group consisting of Al, Si and Ti.

19. The process for producing composite oxide powder according to claim 14, wherein said aqueous solution further contains a third metal element which is at least one member selected from the group consisting of La, Y and Zr.

20. The process for producing composite oxide powder according to claim 14, wherein a catalyst metal compound is further dissolved in said aqueous solution.

21. The process for producing composite oxide powder according to claim 14, wherein the waterdrop diameter in said emulsion is desirably controlled in the range of 100 nm to 10 μ m.

22. The process for producing composite oxide powder according to claim 14, wherein water is desirably 70 % by volume or less.